

# Microfluidic Electropray Propulsion (MEP)

Completed Technology Project (2011 - 2015)



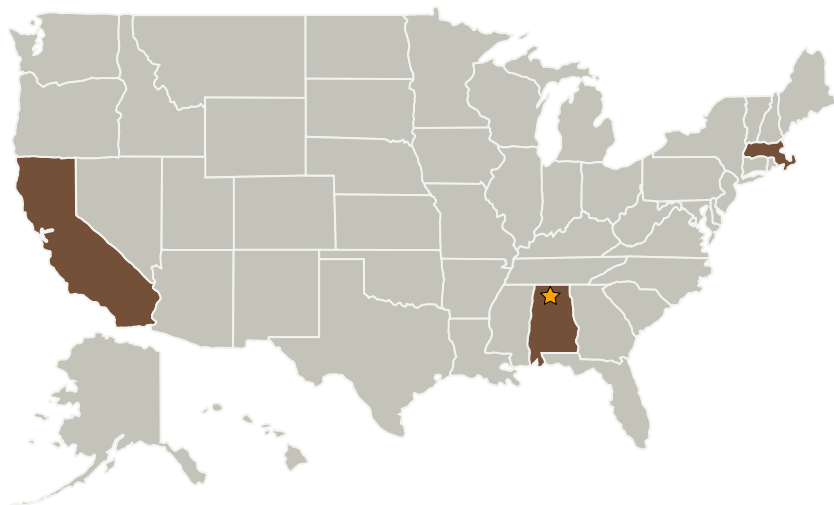
## Project Introduction

Develop small volume microfluidic electropray propulsion technologies to revolutionize small spacecraft primary propulsion as well as offering an alternative fine pointing capability for larger satellites. MEP modules have the potential to be 4x more efficient in terms of thrust to power and enable >10x improvement in thrust range, mass, volume and cost over state of the art

## Anticipated Benefits

Several studies have shown that micro-thrusters could replace attitude control systems and reaction wheels on large spacecraft resulting in large mass savings and increases to mission reliability. This technology can also enable other game changing propulsion capabilities for micro-scale to very large deployable spacecraft structures. Initial investigation into the subject areas has determined that the combined characteristics of performance and technical maturity of the electropray category offers the greatest potential both for revolutionizing small spacecraft propulsion as well as offering an alternative fine pointing capability for larger satellites.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Marshall Space Flight Center (MSFC)	Lead Organization	NASA Center	Huntsville, Alabama



Microfluidic Electropray Propulsion

## Table of Contents

Project Introduction	1
Anticipated Benefits	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Website:	2
Project Management	2
Technology Maturity (TRL)	2
Target Destination	2

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

### Lead Center / Facility:

Marshall Space Flight Center (MSFC)

### Responsible Program:

Game Changing Development

## Microfluidic Electrospray Propulsion (MEP)

Completed Technology Project (2011 - 2015)



### Primary U.S. Work Locations

Alabama

California

Massachusetts

### Project Website:

<https://www.nasa.gov/directorates/spacetech/home/index.html>

### Project Management

#### Program Director:

Mary J Werkheiser

#### Program Manager:

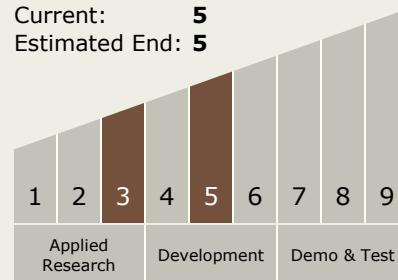
Gary F Meyering

#### Principal Investigator:

Timothy D Smith

### Technology Maturity (TRL)

Start: 3  
Current: 5  
Estimated End: 5



### Target Destination

Earth